REMARKS

Reconsideration of the above-identified patent application in view of the amendments above and the remarks following is respectfully requested.

Claims 1-7 and 9-18 are in this case. Claims 1, 2, 4, 6, 11 and 12 have been rejected under § 103(a). Claims 3, 5 and 13-16 have been objected to. Claims 7, 9, 10 and 13-18 have been allowed. Independent claim 11 and dependent claims 2-5 and 12 have been canceled. Independent claims 1 and 13 and dependent claim 16 have been amended. New independent claim 19 has been added.

The claims before the Examiner are directed toward methods of enhancing gray-scale and color images. In the case of a gray-scale image, both a normalized light dynamic range compressed image and a normalized dark dynamic range compressed image are computed, and then a balanced dynamic range compressed image is computed from the two normalized images. In the case of a color image, a balanced dynamic range compressed norm of the image is obtained and divided by the original norm of the image. The resulting quotient is used to multiply each of the original colors.

§ 103(a) Rejections – Shiota et al. '544 in view of Waxman et al. '244

The Examiner has rejected claims 1, 2, 4, 6, 11 and 12 under § 103(a) as being unpatentable over Shiota et al., US Patent No. 6,674,544 in view of Waxman et al., US Patent No. 5,909,244. The Examiner's rejection is respectfully traversed.

Claims 2, 4, 11 and 12 have been canceled, thereby rendering moot the Examiner's rejection of these claims.

As discussed below, claim 1 has been placed in condition for allowance by the inclusion therein of the limitations of claims 2 and 3. It follows that claim 6, that depends from claim 1, also is allowable.

Objections

The Examiner has objected to claims 3 and 5 as being based on rejected base claims. The Examiner has noted that claims 3 and 5 would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claim.

Claim 3 has been rewritten in independent form by amending claim 1 to include the limitations of claims 2 and 3. Correspondingly, claims 2 and 3 have been canceled.

Claim 5 has been rewritten in independent form as new claim 19. Correspondingly, claims 4 and 5 have been canceled.

The Examiner has objected to the notation used in claims 3, 5, 13-16. Specifically, the Examiner has objected to the use of "$\{N(i,j)\}$" to mean the matrix N, and has requested an explicit indication that FS is a matrix of the same dimensionality as N.

Claim 3 has been amended as suggested by the Examiner. The (i,j) element of the convolution of W with N now is indicated by "$\{W*N\}(i,j)$".
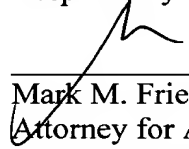
In claim 19, that replaces claim 4, the denominator now is written as "$K+\{W*(FS-N)\}(i,j)$" to show that W, FS and N are matrices. In addition, FS is defined explicitly as a matrix, identical in dimension to N, that represents a dynamic range of the gray-scale image represented by N.

The Examiner's objection to claims 13-16 is respectfully traversed. Please note that the (i,j) notation for matrix elements is not used in claims 13-16. Claim 13

states explicitly that N, I_{pos} and K are scalars and that W is a matrix. The braces around N in the denominators of claims 13-15 are used to show that the convolution with W is an operation performed on a matrix of the scalar norms N in a neighborhood of the target pixel. In other words, in claims 13-15, "N" is a scalar and "$\{N\}$" is a matrix. This use of the braces is defined explicitly in claim 13. Similarly, claim 16 states explicitly that I_{neg} is a scalar, and that the braces around $FS\text{-}N$ indicate that $FS\text{-}N$ is a matrix in a neighborhood of the target pixel. In other words, in claim 16, "N" is a scalar and "$\{FS\text{-}N\}$" is a matrix. For further clarity, claim 16 has been amended to state explicitly that FS is a matrix. That FS and the matrix of norms in the neighborhood of the target pixel have the same dimensions is implicit: otherwise, the subtraction would not make sense.

In view of the above amendments and remarks it is respectfully submitted that independent claims 1, 7, 13 and 19, and hence dependent claims 6, 9, 10, and 14-18 are in condition for allowance. Prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,

Mark M. Friedman
Attorney for Applicant
Registration No. 33,883

Date: September 6, 2004

8